Letter to the Editor

Ditch-related falls: Need for preventive educational campaigns

Key words: Accident prevention, accidental falls, children, drowning, education

Dear Editor,

We previously reported on 13 ditch-related injury cases in Okayama in *Acute Medicine and Surgery*.[1] Since then we have focused on preventive educational campaigns through mass media in our community. However, tragic ditch-related falls involving children have still occurred. Here we describe three subsequent pediatric cases related to ditch falls.

A 3-year-old boy presented after falling into a ditch with water at a depth of 1 m. He was rescued by his mother after being swept downstream for 1 m. His level of consciousness diminished soon after rescue. However, he showed neither major trauma nor neurological sequelae.

A 3-year-old boy was transported to our hospital with cardiopulmonary arrest after drowning in a ditch with water at a depth of 110 cm. He was found 1 h after he went missing. He was hypothermic (34.1°C) and extracorporeal cardiopulmonary resuscitation was performed. Unfortunately, he died of multiple organ failure 8 h later. He had no major trauma.

A 4-year-old boy was transported to our hospital with cardiopulmonary arrest after drowning in a ditch with water at a depth of 90 cm. He was found 20 min after he went missing. Extracorporeal cardiopulmonary resuscitation was performed. He was weaned off extracorporeal membrane oxygenation on day 6. Unfortunately, he died of brain edema on day 33.

Our previous report detailed the characteristics of severe ditch-related injury cases, which included being middle-aged, bicycles, night-time incidents, and late presentation in rural areas. We suggested these characteristics as targets of preventive educational campaigns.[1]

Table 1 shows the characteristics of the three pediatric cases described in this letter. It indicates the devastating consequences of unsupervised toddlers falling into ditches and drowning in broad daylight in urban areas. Considering that unintentional accidents are the leading cause of pediatric death in Japan, urgent action to prevent ditch-related falls is desperately needed.

According to an official document released by the Okayama city council, the city contains 4,000 km of irrigation ditches.[2] As the total ditch length in Japan amounts to 400,000 km, Okayama city should act to prevent the significant risk of falling and drowning.

In our previous report, we suggested considerable local government intervention. However, as the scale of the problem is immense because of the area involved, the government response will need to be assisted with educational campaigns. Therefore, preventive educational action should be conducted across multiple fields, not only in public administration but also in academic communities to help prevent pediatric death through ditch falls. We have been interviewed about ditch-related injuries by a city councilman, and have reported on ditch-related falls to pediatricians in our community through conference presentations. It is desirable that educational campaigns aimed at children involve educational institutions. Informative posters, with the help of primary care clinics and public transportation facilities, would be a helpful tool in further educational campaigns to increase the range of citizens reached. Finally, we appeal for the importance of additional surveys in relation to ditch-related falls throughout the whole of Okayama Prefecture.

Corresponding: *Nobuyuki Nosaka, MD, Department of Pediatrics, Graduate School of Medicine, Dentistry and Pharmaceutical Medicine, Okayama University, 2-5-1 Shikata-cho, Kita-ku, Okayama 700-8558, Japan. E-mail: pv702xz5@s.okayama-u.ac.jp.*

Received 5 Jan, 2015; accepted 23 Feb, 2015; online publication 18 June, 2015

Nobuyuki Nosaka,[1] Kohei Tsukahara,[2] Emily Knaup,[2] Toyomu Ugawa,[2] and Yoshihito Ujike[2]

[1]Department of Paediatrics, Graduate School of Medicine, Dentistry and Pharmaceutical Medicine, Okayama University; and [2]Advanced Emergency and Critical Care Medical Centre, Okayama University Hospital, Okayama, Japan

Table 1. Summary of three pediatric cases of ditch-related falls in Okayama Prefecture, 2015

Patient no.	Age, years	Sex	Area	Time	Lag time, min	Water depth, cm	Guardian	Major injury	Outcome
1	3	M	Residential	Day	0	100	Mother	None	Survived
2	3	M	Residential	Day	60	110	None	None	Died
3	4	M	Residential	Day	20	90	None	None	Died

Lag time, lag time between injury and rescue; M, male.

CONFLICT OF INTEREST

NONE.

REFERENCES

1 Nosaka N, Fujita Y, Morisada S *et al*. Characteristics and costs of ditch-related injuries: A report from a single emergency center in Okayama. Acute Med. Surg. 2014; 1: 145–9.

2 Department of Environment Preservation. Environment White Paper of Okayama City [pamphlet on the Internet] (in Japanese). Okayama: The Environment Bureau, Okayama city, 2014. [updated Apr 2014; cited 16 Apr 2015]. Available from: http://www.city.okayama.jp/contents/000186389.pdf.